B5 end

voltage power network; and

providing phase compensation at the second locality.--

REMARKS

Favorable reconsideration of this application as presently as amended and in light of the following discussion is respectfully requested.

Claims 1-4, 6-21 and 23-39 are pending, Claims 38 and 39 having been amended, and Claim 5 having been canceled by way of the present amendment.

In the outstanding Office Action, the specification was objected to as containing informalities; Claims 38 and 39 were objected to under 37 C.F.R. §1.75(c); Claims 15-18, 26, 29, 30, and 35 were rejected under 35 U.S.C. §112, first paragraph (Claim 1 was also erroneously identified in this rejection); Claims 38 and 39 were rejected under 35 U.S.C. §112, second paragraph; Claims 1, 3-7, 10-21, and 23-39 were rejected under 35 U.S.C. §103(a) as being unpatentable over DeMello et al. (U.S. Patent No. 4,368,418, hereinafter DeMello) in view of Elton et al. (U.S. Patent No. 5,036,165, hereinafter Elton '165); Claims 2 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over DeMello in view of Elton '165 and further in view of Elton et al. (U.S. Patent No. 4,622,116, hereinafter Elton '116); and Claim 9 was rejected under 35 U.S.C. §103(a) as being unpatentable over DeMello in view of Elton '165 and further in view of Takaoka et al. (U.S. Patent No. 5,094,703, hereinafter Takaoka).

In response to the objection to the disclosure, the specification has been amended by way of the present amendment correcting the informalities identified in the outstanding Office Action. No new matter has been added.

Claims 38 and 39 were objected to under 37 C.F.R. §1.75(c) as being of improper dependent form, and Claims 38 and 39 were rejected under 35 U.S.C. §112, second

paragraph. In response, Claims 38 and 39 have been amended by way of the present amendment. Claims 38 and 39, as amended, are believed to be in proper dependent form, and believed to be definite. However, if the Examiner disagrees, the Examiner is invited to telephone the undersigned so that mutually agreeable claim language may be identified. Furthermore, the amendments to Claims 38 and 39 are believed to find clear support in the specification as originally filed, including the claims, and thus, no new matter has been added.

In response to the rejection of Claims 15-18 under 35 U.S.C. §112, first paragraph, the specification has been amended by way of the present amendment to include a description of the phases of the stator windings being Y-connected. This amendment to the specification is believed to find support in the specification as originally filed, including the claims (see, e.g., original Claim 15), and thus, adds no new matter. In response to the rejection of Claim 35 under 35 U.S.C. §112, first paragraph, the specification has been amended by way of the present amendment to include a description that the winding of the machine is arranged for self-regulating field control and does not include an auxiliary means for controlling the field. This amendment to the specification is believed to find support in the specification as originally filed, including the claims (see, e.g., original Claim 35), and thus, adds no new matter.

Applicants respectfully traverse the rejection of Claims 26, 29, and 30 under 35 U.S.C. §112, first paragraph. It is respectfully submitted that Claims 26, 29, and 30 find support in the specification as originally filed, for example, at page 2, lines 15-30. In particular, page 2, lines 15-22 describe thermally dimensioning the rotor and the stator supporting Claim 26. Furthermore, page 2, lines 23-30 describe reactance in the transverse direction and positive and negative excitation supporting Claims 29 and 30, respectively.

Claim 1 is directed to a mobile synchronous compensator plant including at least one

rotating electric machine. The rotating electric machine has a winding that has an insulation system including at least two semiconducting layers, each of which provide an essentially equipotential surface. The insulation system also includes a solid insulation layer disposed between the two semiconducting layers. The plant is configured to be transportable by a lorry, a railway track, or a helicopter.

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over DeMello in view of Elton '165. The outstanding Office Action asserts that DeMello discloses the claimed invention except for the electric winding having semiconducting layers. Elton '165 is asserted for this purpose. DeMello is directed to an apparatus for controlling high-voltage by absorption of capacitive bars.[1] The stator of the apparatus includes a conventional insulated winding.[2] However, DeMello does not teach or suggest a desirability for modifying the winding to include an insulation system having at least two semiconducting layers providing essentially equipotential surfaces and a solid insulation layer disposed therebetween.

As discussed above, Elton '165 is asserted for its teaching of using a semiconducting layer in the insulation of a conductor. It should be noted that Elton '165 is a divisional application of U.S. Patent No. 4,853,565, which is incorporated by reference (col. 1, lines 5-9) and thus, contains the same disclosure as U.S. Patent No. 4,853,565. Since U.S. Patent No. 4,853,565 contains a more complete disclosure than Elton '165, all further references to Elton '165 will be based on U.S. Patent No. 4,853,565 (hereinafter Elton '565).

The invention of Elton '565 is about an insulator material, namely, a pyrolyzed glass fiber layer that may be used in a variety of applications. For example, Elton '565 describes surrounding conventional bar-type windings of an electric machine with a layer of pyrolyzed

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[1] See DeMello at column 2, lines 30-35.
[2] *Id*, at column 3, lines 4-8.

glass fiber in electrical contact with ground to minimize corona discharge by providing a path to ground to bleed off built up charges.[3] Elton '565 also describes using a semiconducting pyrolyzed glass fiber layer to equalize the potential on the exterior of the insulator of a cable.[4] Elton '565 describes yet another application of the pyrolyzed glass fiber layer as a way to protect electronic components by coating the exterior surface of a housing with the semiconducting pyrolyzed glass fiber.[5]

However, Elton '565 does not teach or suggest that the cable shown in Figure 7 (i.e., Figure 1 in Elton '165) could be used as a winding in a rotating electric machine. To the contrary, the cable in Elton '565 is but one of several exemplary applications of the pyrolyzed glass fiber layer described in Elton '565. It appears to be completely coincidental that Elton '565 uses a winding and also a cable (as well as a chassis for an electric circuit) as exemplary uses for the pyrolyzed glass insulator material. There is nothing in Elton '565 to suggest a desirability of using the cable shown in Figure 7 of Elton '565 as a substitute for a conventional winding in a rotating electric machine.

The outstanding Office Action asserts the motivation for combining DeMello and Elton '165 would be to "prohibit the development of corona discharge."[6] However, there is nothing in DeMello to indicate a desirability for a winding having different properties than the winding disclosed therein. Further, as discussed above, there is nothing in Elton '565 to suggest a desirability or motivation to use the cable, shown in Figure 7 of Elton '565, as a winding in a rotating electric machine.

The "invention" in Elton '565 is the pyrolyzed glass fiber layer. Elton '565 describes a process of immersing the winding portions in a bath of resin and vacuum pressure

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[3]See Elton '565, column 2, lines 44-48, and Figures 1-6.
[4]See Elton '565, column 7, lines 12-17, and Figure 7.
[5]See Elton '565, column 7, lines 38-43, and Figure 8.
[6]See Office Action dated November 23, 2001, at numbered paragraph 8, p. 5.

impregnating (VPI) the resin in the winding.[7] The VPI process results in a cured resin having no voids or gaps between layers.[8] The cured resin is a hard material, which is an important observation, since the Office Action asserts that winding of DeMello could be replaced with a pyrolyzed glass-based cable of Elton '565. However, as discussed below, the cable in Elton '565 would be too stiff to be used as a "flexible" winding in a rotating electric machine.

The cable shown in Figure 7 of Elton '565 includes two pyrolyzed glass fiber layers, layers 104 and 110.

> The internal grading layer 104 is a semi-conducting pyrolyzed glass fiber layer as disclosed herein. . . . An insulation 106 surrounds internal grading layer 104. On the external surface of insulation 106, a semi-conducting pyrolyzed glass fiber layer 110 equalizes the electrical potential thereon.[9]

As further evidence that the cable shown in Figure 7 Elton '565 would not be suitable as a winding in a rotating electric machine, having two pyrolyzed glass fiber layers would cause the cable to be prohibitively stiff to be bent into a winding. Accordingly, while Elton '565 describes how to provide a pyrolyzed glass fiber layer for a bar-type winding, Elton '565 does not teach or suggest that the cable of Figure 7 could be used for such a purpose, especially since the cable in Elton '565 would be stiff, not flexible.

For a proper obviousness rejection based on a combination of references, there must be evidence in the references themselves showing that there was a motivation to combine the references, or from what was known to one of ordinary skill in the art, not merely that it was feasible to combine the references. It is respectfully submitted that there is no evidence (1) of a desirability to modify the winding used in DeMello, (2) to suggest that the cable described in Elton '565 could be used as a winding in a rotating electric machine, nor (3) that one of

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[7] See Elton '565, column 4, lines 23-25.
[8] See Elton '565, column 4, lines 27-30.
[9] See Elton '565, column 7, lines 19-26.

ordinary skill in the rotating electric machine art would have a reasonable expectation of success if the rotating electric machine in DeMello was modified to operate with cable windings that operate at high voltage.

Consequently, the motivation asserted in the outstanding Office Action is unsupported by any evidence indicating that the proposed combination of DeMello and Elton '165 is desirable or technically feasible. Accordingly, it is respectfully submitted that one of ordinary skill in the electric machine art would not have been motivated to combine the cable in Elton '165 with the rotating electric machine in DeMello.

Therefore, it is respectfully submitted that no matter how DeMello is combined with Elton '165, the combination does not teach or suggest all of the elements of independent Claim 1, or Claims 3-7, 10-21, and 23-38, dependent therefrom. Because independent Claim 39, as amended, includes the features relevant to the discussion above, it is respectfully submitted that Claim 39 also patentably defines over a combination of DeMello and Elton '165.

Claims 2 and 8 are rejected as being unpatentable over DeMello in view of Elton '165, and further in view of Elton '116. Elton '116 is asserted for its teaching of having different overlapping layers of insulation having a same coefficient of thermal expansion in order to prevent thermal stress causing the materials to separate and crack. However, Elton '116 does not teach or suggest the elements which are also missing in the proposed combination of DeMello and Elton '165, namely a rotating electric machine having a cable for a winding including the insulation system as required by Claim 1. Therefore, no matter how DeMello is combined with Elton '165 and Elton '116, the combination does not teach or suggest all the elements of Claim 1, or Claims 2 and 8, dependent therefrom. Consequently, it is respectfully submitted that Claims 2 and 8 patentably define over the combination of DeMello in view of Elton '165 and further in view of Elton '116.

Claim 9 is rejected as being unpatentable over DeMello in view of Elton '165, and further in view of Takaoka. Takaoka is asserted for its teaching of having uninsulated strands of an electrical conductor. However, Takaoka does not teach or suggest the elements which are also missing in the proposed combination of DeMello and Elton '165, namely a rotating electric machine having a cable for a winding including the insulation system as required by Claim 1. Therefore, no matter how DeMello is combined with Elton '165 and Takaoka, the combination does not teach or suggest all the elements of Claim 1, or Claim 9, dependent therefrom. Consequently, it is respectfully submitted that Claim 9 patentably defines over the combination of DeMello in view of Elton '165 and further in view of Takaoka.

Consequently, in view of the present amendment, and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-4, 6-21, and 23-39, as amended, is definite and patentably distinguishing over the asserted prior art. The present application is therefore believed to be in condition for formal allowance, and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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Marked-Up Copy
Serial No: 09/509,438
Amendment Filed on:
4-23-02

IN THE SPECIFICATION

Please amend the specification as follows:

Page 7, lines 13-15:

According to the invention this object has been achieved by way of [in that] a synchronous compensator plant [of the kind specified in the preamble of claim 1 includes the specific features specified in the characterizing portion of the claim] described herein.

Page 8, line 28 through page 9, line 2:

The reduction of the amount of required components in the plant and in particular the elimination of the transformers in the plant makes the design of the plant as a mobile unit possible[, which thus is included as an essential feature of claim 1]. By making the plant as a mobile unit that can be transported by a lorry, a railway truck, a helicopter or the like, the plant can be moved from one location of a power network to another, should the need for phase compensation in the network change.

Page 9, lines 3-7:

With a synchronous compensator plant having components with windings of the specific construction as described herein [claimed in claim 1] and making use of the possibility to design the plant as a mobile unit the drawbacks related to stationary synchronous compensator plants thus are overcome. This is primarily of relevance for high-voltage networks, in particular in the range of 36 kV and above.

Page 14, between lines 8 and 9, please insert the following paragraph:

In one embodiment of the present invention, the phases of the stator winding are Y-connected.

Page 14, lines 9-11:

In another embodiment of the present invention, the winding of the machine is arranged for self-regulating field control, and lacks auxiliary means for controlling the field. [From another aspect of the invention, the object has been achieved in that a plant of the type described in the preamble to claim 35 is given the special features defined in the characterizing part of this claim.]

Page 14, lines 12-17:

Since the insulation system, suitably permanent, is designed so that from the thermal and electrical point of view it is dimensioned for over 36 kV, the plant can be connected to high-voltage power networks without any intermediate step-up transformer, thereby achieving the advantages referred to above. [Such a plant is preferably, but not necessarily, constructed to include the features defined for the plant as claimed in any of claims 1-34.]

IN THE CLAIMS

Please cancel Claim 5 without prejudice or disclaimer.

Please amend Claims 38 and 39 as follows:

--38. (Twice Amended) The [use of the] mobile plant according to claim 1, wherein: the mobile plant is configured to provide [for] phase compensation at a plurality of [different] localities of a high voltage power network.

39 (Twice Amended) A method for phase compensation in a high voltage power network [wherein] using a mobile synchronous compensator plant including at least one rotating electric machine having at least one winding having an insulation system including at a first semiconducting layer, a solid insulation layer surrounding the first semiconducting layer, and a second semiconducting layer surrounding the solid insulation layer, the first semiconducting layer and the second semiconducting layer being configured to provide respective essentially equipotential surfaces, and the mobile plant being configured to be transportable by at least one of a lorry, a railway truck, and a helicoptor, comprising the steps of:

providing phase compensation at a first locality of the high voltage power network;

transporting the mobile plant from the first locality to a second locality of the high voltage power network; and

providing phase compensation at the second locality

[plant according to claim 1 is transported between different localities in the network for phase compensation at these different localities].--